

Amendments To The Claims

The listing of claims presented below will replace all prior versions and listings of claims in the application.

Listing of claims:

1. **(currently amended)** A digital television (DTV) transmitter, comprising:
 - an input ~~means for receiving~~ unit configured to receive a digital video data stream including normal data and robust data;
 - an encoding ~~means for coding~~ unit configured to code the digital video data stream into data symbols; and
 - a transmitting ~~means for modulating and transmitting~~ unit configured to modulate and transmit an output signal of the encoding ~~[[means]]~~ unit,
 - wherein the encoding ~~means performs~~ unit is configured to perform trellis coding on the robust data by sequentially mixing ~~and using~~ a plurality of methods such that the encoding unit includes a robust encoder configured to encode robust data by sequentially mixing a P-2VSB method with anyone method of an E-4VSB method and an E-8VSB method.
2. **(currently amended)** The DTV transmitter as recited in claim 1, wherein the encoding ~~means maps~~ unit is configured to map the normal data into any one data symbol of {-7,-5,-3,-1,1,3,5,7}.
3. **(currently amended)** The DTV transmitter as recited in claim 1, wherein the encoding ~~[[means]]~~ unit further includes:
 - ~~[[a]]~~ the robust encoder ~~for coding~~ configured to code the robust data into 2-bit data symbols; and
 - a trellis encoder ~~for outputting~~ configured to output a data symbol of any one level among predetermined levels expressed in three bits based on the 2-bit data symbols.
4. **(currently amended)** The DTV transmitter as recited in claim ~~[[3]]~~ 1, wherein the robust encoder ~~encodes robust data by mixing and using a P-2VSB method and an~~

E-4VSB method is configured to encode robust data by sequentially mixing the P-2VSB method only with the E-4VSB method.

5. (currently amended) The DTV transmitter as recited in claim ~~[[4]]~~ **1**, wherein the robust encoder ~~encodes robust data by further adding and using a 16-state E-8VSB method~~ **is configured to encode robust data by sequentially mixing the P-2VSB method with the E-4VSB method and with the E-8VSB method.**

6. (currently amended) The DTV transmitter as recited in claim ~~[[3]]~~ **1**, wherein the robust encoder ~~is configured to encode~~ ~~encodes~~ robust data by ~~sequentially~~ mixing ~~and using a the~~ P-2VSB method ~~and a 16-state~~ **only with the** E-8VSB method.

7. (currently amended) The DTV transmitter as recited in any one of claims 4 to 6, wherein the robust encoder maintains the distance of robust data packets encoded in the P-2VSB method to be not less than three packets.

8. (currently amended) The DTV transmitter as recited in any one of claims 1 to 6, wherein the encoding ~~[[means]]~~ **unit** further includes:

a data randomizer ~~for randomizing~~ **configured to randomize** an output signal of the input ~~[[means]]~~ **unit**;

a Reed Solomon (RS) encoder ~~for performing~~ **configured to perform** RS encoding on output signals of the data randomizer;

a robust interleaver/packet formatter ~~for interleaving~~ **configured to interleave** only robust data among output signals of the RS encoder and ~~performing~~ **configured to perform** reconstruction into robust data packets based on a robust data coding rate; and

a data interleaver ~~for interleaving~~ **configured to interleave** an output signal of the robust interleaver/packet formatter.

9. (currently amended) A digital television (DTV) receiver, comprising:

a receiving ~~means for receiving~~ **unit configured to receive** a transmission

signal including normal data and robust data and ~~converting~~ configured to convert the received transmission signal into a baseband signal;

an equalizing ~~means for determining~~ unit configured to determine a symbol level of the transmission signal;

a trellis decoding ~~means for performing~~ unit configured to perform trellis decoding on the symbol whose level has been determined; and

a decoding ~~means for outputting~~ unit configured to output a digital video data stream with respect to the trellis decoded signal,

wherein the trellis decoding ~~means performs~~ unit configured to perform trellis decoding on the robust data by sequentially mixing ~~and using~~ a plurality of methods

wherein the trellis decoding unit decodes the determined symbol level by sequentially mixing a P-2VSB method with anyone method of a E-4VSB method and an E-8VSB method.

10. **(currently amended)** The DTV receiver as recited in claim 9, wherein the trellis decoding ~~means decodes~~ unit is configured to decode the determined symbol level into two-bit data symbols by sequentially mixing ~~and using a the~~ P-2VSB method ~~and an only with the~~ E-4VSB method.

11. **(currently amended)** The DTV receiver as recited in claim ~~[[10]]~~ 9, wherein the trellis decoding ~~means performs~~ unit is configured to perform decoding by further sequentially mixing ~~and using a 16-state the P2VSB method with the E-4VSB method and with the~~ E-8VSB method.

12. **(currently amended)** The DTV receiver as recited in claim 9, wherein the trellis decoding ~~means decodes~~ the determined symbol level into a two-bit data symbol by sequentially mixing ~~and using a the~~ P-2VSB method only with and an the E-8VSB method.

13. **(currently amended)** The DTV receiver as recited in any one of claims 9 to 12, wherein the decoding means includes:

a data deinterleaver ~~for deinterleaving~~ configured to deinterleave an output signal of the trellis decoding ~~[[means]]~~ unit;

a packet formatter/robust deinterleaver ~~for reconstructing~~ configured to reconstruct robust data among output signals of the data deinterleaver into robust data packets formed of information data and ~~deinterleaving~~ configured to deinterleave the reconstructed robust data packets;

a Reed Solomon (RS) decoder ~~for performing~~ configured to perform RS decoding on output signals of the packet formatter/robust deinterleaver;

a data derandomizer ~~for derandomizing~~ configured to derandomize output signals of the RS decoder; and

a demultiplexer ~~for demultiplexing~~ configured to demultiplex output signals of the data derandomizer.

14. **(currently amended)** A digital television (DTV) transmitting method, comprising the steps of:

a) inputting a digital video data stream including normal data and robust data;
b) ~~coding~~ encoding robust data of the digital video data stream into data symbols by sequentially mixing a P-2VSB method with anyone method of an E-4VSB method and an E-8VSB method; and

c) modulating and transmitting an output signal of the encoding step b),
wherein trellis coding is performed on the robust data in the encoding step b) by sequentially mixing ~~and using a the~~ plurality of methods.

15. (original) The DTV transmitting method as recited in claim 14, wherein the normal data are mapped to any one data symbol of $\{-7, -5, -3, -1, 1, 3, 5, 7\}$ in the encoding step b).

16. **(currently amended)** The DTV transmitting method as recited in claim 14, wherein the encoding step b) includes:

b1) ~~coding~~ encoding the robust data into 2-bit data symbols; and
b2) outputting a data symbol of any one level among predetermined levels expressed in three bits based on the 2-bit data symbols, which is trellis encoding.

17. **(currently amended)** The DTV transmitting method as recited in claim 16, wherein the robust data are encoded by sequentially mixing ~~and using a the~~ P-2VSB method ~~and an~~ only with the E-4VSB method in the robust encoding step b1).

18. **(currently amended)** The DTV transmitting method as recited in claim ~~[[17]]~~ 16, wherein robust data are encoded by ~~further~~ sequentially mixing ~~and using a 16-state~~ the P-2VSB method with the E-4VSB method and with the E-8VSB method in the robust encoding step b1).

19. **(currently amended)** The DTV transmitting method as recited in claim 16, wherein robust data are encoded by sequentially mixing ~~and using a the~~ P-2VSB method ~~and a 16-state~~ only with the E-8VSB method in the robust encoding step b1).

20. (original) The DTV transmitting method as recited in any one of claims 17 to 19, wherein distance of robust data packets encoded in the P-2VSB method are maintained to be not less than three packets in the robust encoding step b1).

21. (original) The DTV transmitting method as recited in any one of claims 14 to 19, wherein the encoding step b) further includes:

- b3) randomizing the input signal;
- b4) performing RS encoding on an output signal randomized in the step b3);
- b5) interleaving only robust data among output signals of the RS encoding step b4) and performing reconstruction into robust data packets based on a robust data coding rate, which is packet formatting; and
- b6) interleaving an output signal of the robust interleaving/packet formatting step b5).

22. **(currently amended)** A digital television (DTV) receiving method, comprising the steps of:

- a) receiving a transmission signal including normal data and robust data and

converting the received transmission signal into a baseband signal;

b) determining a symbol level of the transmission signal;

c) performing trellis decoding on the symbol whose level has been determined;

and

d) outputting a digital video data stream with respect to the trellis decoded signal,

wherein the trellis decoding is performed on the robust data in the trellis decoding step c) by sequentially mixing ~~and using~~ a plurality of methods such that the trellis decoding step c) by sequentially mixes a P-2VSB method with anyone method of a E-4VSB method and an E-4VSB method.

23. **(currently amended)** The DTV receiving method as recited in claim 22, wherein the determined symbol level is decoded into a two-bit data symbol in the trellis decoding step c) by sequentially mixing ~~and using a the~~ P-2VSB method ~~and an only with the~~ E-4VSB method.

24. **(currently amended)** The DTV receiving method as recited in claim ~~[[23]]~~ 22, wherein the trellis decoding is performed in the trellis decoding step c) by ~~further mixing and using a 16-state~~ by sequentially mixing the P-2VSB method with the E-4VSB method and with the E-8VSB method.

25. **(currently amended)** The DTV receiving method as recited in claim 22, wherein the determined symbol level is decoded into a two-bit data symbol in the trellis decoding step c) by sequentially mixing ~~and using a the~~ P-2VSB method ~~and an only with the~~ E-8VSB method.

26. (original) The DTV receiving method as recited in any one of claims 22 to 25, wherein the decoding step d) includes:

d1) deinterleaving output signals of the trellis decoding step c);

d2) reconstructing robust data among output signals obtained in the data deinterleaving step d1) into robust data packets formed of information data, which is packet formatting, and deinterleaving the reconstructed robust data packets;

d3) performing Reed Solomon (RS) decoding on output signals of the packet formatting/robust deinterleaving step d2);

d4) derandomizing output signals of the RS decoding step d3); and

d5) demultiplexing output signals of the data derandomizing step d4).

27. (currently amended) The DTV transmitting method as recited in claim 16,

wherein the DTV transmitting method transmits a A digital television (DTV)

transmission signal[[,]] comprising:

normal data information mapped to any one data symbol of {-7,-5,-3,-1,1,3,5,7};

robust data information which are trellis encoded in P-2VSB, E-4VSB, and/or E-8VSB methods and mapped to any one data symbol of {-7,-5,-3,-1,1,3,5,7};

robust data trellis coding method information; and

a robust data flag information for identifying the normal data and the robust data,

wherein the transmission signal is a Vestigial Side Band (VSB) modulated signal.

28. (currently amended) The DTV transmitting method as recited in claim 27,

wherein the ~~The DTV transmission signal as recited in claim 27,~~ wherein the normal

data information and the robust data information are interleaved to be mixed with each

other, and the robust data information ~~include a~~ **includes** header information to have

backward compatibility.